

The review of the Italian association of psycho-neuro-endocrine-immunology (SIPNEI)

edited by Francesco Bottaccioli, post-graduate courses, University of Siena, Italy

PNEINEWS

The new knowledge of the science and the health

Nurturing the beginning of life

Nutrition and maternal stress programme the state of health in the child and the adult

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Translation from Italian language : Patrizia Rustichelli Stirgwolt

Editorial

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Francesco Bottaccioli

Dossier

Nurturing the beginning of life

Pag.4. The initial starting in life condition in the adult

There are now many evidences proving how the nutritional, hormonal and metabolic environment during pregnancy can programme the physiological structure of the offspring with consequences in the adult life.

Roberta De Bellis

Human network- Endocrine and hormonal balance

Pag. 8. More belly, less testosterone

Metabolic syndrome concerns a considerable and growing number of the Italian population. Beside the lack of exercise and food excesses, hormones also play a role in it. Fat converts testosterone into oestrogens with easily deducible systemic consequences for men.

Andrea Delbarba

Pag.10. A healthy diet, physical exercise and meditation. The way to keep hormones in balance.

The respect of the sleep/wake biological rhythms, physical exercise/rest, mental activation/relax, is in harmony with the circadian rhythms of our hormones and it preserves them along the time as a health guarantee also in adult and senile age.

Ascanio Polimeni

Human network – Meditation, psyche and brain

Pag.11. The power of mindfulness. Can meditation improve our mind and brain?

The neuro-imaging techniques applied to the brain of meditators show that the positive effects of meditation are combined with the reprogramming of crucial cerebral circuits.

Alberto Chiesa

Therapies – Less is better

Pag.14. Medical pollution. Waste and abuse in diagnostic radiography is a great damage for the environment and people's health.

A considerable number of radiological tests are clinically unjustifiable (no benefits, just costs): this means guiltily exposing a big part of the population to the deriving toxic effects of ionizing radiation which is carcinogenic and mutagenic.

M.Dimonte, A.Dodaro, V.Recchia, S. Sabina, A.Zizza

Theoretics – Ten years after Varela's death

Pag.17. Francisco Varela: a science for mankind

Ten years ago, at the age of 45, Varela died. He was a great neurobiologist and epistemologist. A researcher on the biology of complexity who gave a considerable contribution to the definition of a new paradigm of science of life .

Salvatore Colazzo

International Congress

Pag.22. Introducing some of the main relators.

Sipnei editorial team

Editorial

Nurturing life in its entirety since the beginning

Francesco Bottaccioli – SIPNEI Honorary President, PNEI professor for postdegree formation courses at the University of Siena.

Since it began to be considered an independent science, psychology has highlighted, through Sigmund Freud, the importance of the first life experiences in forming the modality of emotion regulation and therefore possible psychopathologies in adult life.

In recent years, researchers, as John Bowlby, have deepened the study about the ties among the child and the mother and the family as a whole until defining several “types of attachment”. These last ones will constitute the base for the style of emotion regulation which that particular child will use not only in his childhood but also as an adult.

Thus what happens in the first phases of life is very important for the rest of it, meaning that we prematurely acquire models of emotion and stress regulation that will condition us for the rest of our life.

Thanks to Hans Selye’s researches dating back to the first half of the twentieth century, we know that the stress reaction can be activated by several factors which are psychological, social and environmental. Experiencing an emotional loss, a social failure or famine is obviously not the same thing under the point of view of the affective and mental perception of the problem. Yet, from a biological point of view, all these stressors activate the stress reaction.

From 1976 they started to publish the first results on a study about the “Dutch famine of 1944”. The “Hunger winter” took place in the Netherlands during World War II when the Germans had occupied the western part of Holland (including Amsterdam) and cut the food supply for the local population to 400-800 calories per day: which is 6 times less than the normal average. The study was carried out on children born from women that were pregnant between November 1944 and April 1945.

Since the last 35 years, the ongoing researches have documented that, once the group of Dutch famine children had become adults, they showed an increase of incidence in mood disorders, (anxiety and depression), antisocial personality disorders, schizophrenia, and, very recently, also an accelerated decline of cognitive functions occurring at the age of 56-59. ¹

The rich experimental literature explains this phenomenon showing that stress in a pregnant woman (with the subsequent increase of CRH hormone and cortisol) induces in the offspring the formation of a stress system which is hyperactive too. This stress system predisposes to the insurgence of mental disorders of different nature.

At the end of the ’80s it has come to light another important piece of the complex puzzle of relationships between maternal stress and the pathologies developed by the offspring in their adult life. As recalled by Roberta De Bellis in her work (see this issue’s dossier), David Barker proved the existence of a direct relationship between a low birth weight and the increase of risk of death from ischemic heart disease in adult age.

In the last years the relationship between low birth weight and pathologies extended to all the most important human disorders: obesity, diabetes, hypertension, cancer.

A low birth weight can happen because of two cases: premature birth or because the fetus has not been well fed. The frequency of both of them seems to be increasing in the last years. The causes are manifold, yet two seem to be the key ones: stress and maternal malnutrition causing an inflammatory alteration in the intestinal and vaginal mucous membrane predisposing it to infections. Indeed we have recent data that prove an inverse relationship between pregnant women taking probiotics and preterm delivery ² and the efficacy of probiotics reducing mortality by

¹ There is a rich literature. In this article I quote only: Schulz L.C., The Dutch Hunger Winter and the development origins of health and disease, *PNAS* 2010; 107: 16757-16758

² Myhre R. et al. Intake of probiotic food and risk of spontaneous preterm delivery, *Am J Clin Nutr* 2011; 93: 151-7

necrotizing enterocolitis in children with a very low birth weight.³

In sum, it is possible to nurture life at its best, in its entirety, since the very beginning of it, with advantages for everybody.

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³ Deshpande G et al. Progress in the field of probiotics: year 2011, *Curr Opin Gastroenterol* 2011; 27: 13-18